UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2000-0318

March 14, 2001

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for Catherine Creek Bridge Replacement, Union County, Oregon

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed Catherine Creek Bridge replacement in the City of Union, Union County, Oregon. The NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Snake River spring/summer chinook salmon or Snake River steelhead, or destroy, or adversely modify their critical habitat. This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

In addition, this document also serves as consultation on Essential Fish Habitat (EFH) under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Stevens Act). An EFH analysis is required for Snake River spring/summer chinook salmon (*Oncorhynchus tshawytscha*).

Questions regarding this Opinion should be directed to Pat Oman of my staff in the Oregon State Branch Office at 503.231.2313.

Sincerely,

Donna Darm
Acting Regional Administrator

cc: Rose Owens - ODOT (w/o attachment)
Melinda Trask - ODOT
Julie Bunnell - ODOT (w/o attachment)
Art Martin - ODFW (w/o attachment)
Chuck Howe - ODOT
Douglas L. Wright - ODOT (w/o attachment)
Alison Beck-Haas - USFWS (w/o attachment)

Endangered Species Act - Section 7 Consultation
&
Magnuson - Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Catherine Creek Bridge
Union County, Oregon

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: March 14, 2001

Refer to: OSB2000-0318

TABLE OF CONTENTS

1. BACKGROUND

On December 20, 2000, the National Marine Fisheries Service (NMFS) received a Biological Assessment (BA) and request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for a bridge replacement project on Catherine Creek, located on 5th Street in the City of Union, Union County, Oregon. The FHWA is funding the proposed repairs, and is the lead agency for the project. Oregon Department of Transportation (ODOT) will administer the construction contract. Design will be done by Anderson Perry and Associates, a consultant group. This biological opinion (Opinion) is based on the information presented in the BA, additional information received on January 23, 2001, and the result of the consultation process.

The FHWA/ODOT has determined that Snake River steelhead (*Oncorhynchus mykiss*) and Snake River spring/summer chinook (*Oncorhynchus tshawytscha)* may occur within the project area. The Snake River steelhead were listed as threatened on August 18, 1997 (62 FR43937) and Snake River spring/summer chinook salmon were listed as threatened on April 22, 1992 (57 FR 14653). Protective regulations for Snake River steelhead and Snake River spring/summer chinook were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423). The proposed project is within critical habitat for Snake River spring/summer chinook, designated on December 28, 1993 (58 FR 68543), and that of Snake River steelhead, designated on February 16, 2000 (65 FR 7764).

The FWHA/ODOT is proposing to replace a structurally deficient bridge that spans Catherine Creek on 5th Street in Union, which is located east of La Grande in Union County, Oregon. The bridge is located in town, five blocks to the west of Highways 203/237 which run north-south through Union. Catherine Creek is a tributary of the Grande Ronde River, which is located approximately 10 miles away; the project site is at river mile 18 of Catherine Creek. The bridge replacement project includes demolition of the old bridge and some improvements to the roadway approaches to the bridge. Work will begin in June of 2001 and is expected to be completed in October of 2001.

The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The FWHA/ ODOT determined that the proposed action was likely to adversely affect Snake River steelhead and Snake River spring/summer chinook.

This Opinion reflects the results of the consultation process. The consultation process involved correspondence and communications to obtain additional information and clarify the BA. Additional information about the project was received on January 23, 2001.

The objective of this Opinion is to determine whether the actions to replace the Catherine Creek bridge in Union County are likely to jeopardize the continued existence of Snake River steelhead and Snake River spring/summer chinook, or destroy or adversely modify these species' critical habitat.

2. PROPOSED ACTION

The proposed project will replace a functionally obsolete and structurally deficient bridge constructed in 1949 with a new, single span, precast, prestressed concrete bridge. The new bridge will be founded on driven piles (as opposed to spread footings) and will be above the floodplain elevation. The bottom of the pile cap and wingwalls will be above the Ordinary High Water (OHW) mark. The new bridge will be in the same vertical and horizontal alignment as the old bridge, but it will be 23 feet wider because of the addition of sidewalks and concrete parapet rails. The increased width of the bridge will require the removal of several trees. The bridge will also be longer by about 13 feet. The new abutments for the bridge will be located about ten feet back (away from the active flowing channel) of the existing abutments, which will be broken into pieces and removed from their current location in the creek bed. Curbs and sidewalks on the new bridge will direct stormwater runoff into vegetated soils, which will be an improvement over the current drainage, which allows runoff to enter Catherine Creek directly.

Rip rap will be required to protect the bridge abutments from potential scour problems. A toe trench on either side of the bridge will be excavated to key in the riprap. The base of this toe trench will be in the same location as the existing abutments; the removal of the old bridge abutments will create a void which will be filled with riprap as part of the toe trench. Approximately 507 tons of Class 100 rip rap will be used to protect the re-contoured embankments, wingwalls, and the pile cap foundation. The riprap will extend approximately 13 feet up and downstream of the bridge structure, for a total length of 59 feet. About 60% of this rip rap (331 tons) will be placed below the OHW elevation, and 60% of it will be shaded by the new bridge structure. Above the OHW, the interstitial spaces between the new riprap will be filled in with native soil.

The old bridge will be removed in pieces during the ODFW approved in-water work period in order to minimize harm to listed fish. The road will be closed to the public, and used to stage construction activities. A containment diaper will be installed on the existing bridge, and the decking and girders will be taken out from the top of the bank, using an excavator or crane. No equipment will operate from within the two year floodplain. The bridge removal activities and all other construction activities that take place within the 2 year floodplain will be completed within the ODFW-specified in-water work period, which for this area is July 1 to July 31.

Temporary erosion control measures will be installed for all stages prior to beginning construction. The contractor will prepare a final erosion control plan that will incorporate applicable conservation measures. This will include the use of silt fences, secured with sand bags and/or erosion control fabric, to prevent erosion and loss of construction debris into the stream. The instream work area will be isolated from the active flowing channel with a possible combination of sand bags, hay bales, and plastic sheeting.

The containment mechanism will be removed after all instream bridge demolition work is completed. Erosion control measures will remain in place until all work is completed and the site has been

revegetated or otherwise stabilized, as per the final erosion control plan to be prepared by the contractor and approved by the ODOT Regional Environmental Coordinator (REC).

3. BIOLOGICAL INFORMATION AND CRITICAL HABITAT

The Snake River steelhead Evolutionarily Significant Unit (ESU) was listed as threatened on August 18, 1997 (62 FR43937) and Snake River spring/summer chinook salmon ESU was listed as threatened on April 22, 1992 (57 FR 14653). Protective regulations for Snake River steelhead and Snake River spring/summer chinook were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423). Biological information for Snake River steelhead is found in Busby et al. (1996) and that for Snake River spring/summer chinook in Mathews and Waples (1991) and is summarized in Myers et al. (1998). Recent counts of upstream migration of both species, done at Lower Granite Dam, show at least some short-term improvement in the levels of adults returning to spawn. The Grande Ronde River, to which Catherine Creek is a tributary, is one of five principal subbasins in the Snake River drainage that contributes to salmon and steelhead production.

Critical habitat for Snake River spring/summer chinook was designated on December 28, 1993 (58 FR 68543), and critical habitat for Snake River steelhead was designated on February 16, 2000 (65 FR 7764). Critical habitat for Snake River salmon and steelhead encompasses the major Columbia River tributaries known to support this ESU, including the Salmon, Grande Ronde, Imnaha, Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing (more than 100 years duration) naturally impassable barriers, and therefore, includes the Catherine Creek project area. The riparian zone adjacent to these waterways is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

4. EVALUATING PROPOSED ACTIONS

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) Defining the biological requirements and current status of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any

cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of the Snake River spring/summer salmon and steelhead under the existing environmental baseline. NMFS' Essential Fish Habitat (EFH) analysis considers the effects of proposed actions on EFH and associated species and their life history stages, including cumulative effects and the magnitude of such effects.

4.1. Biological Requirements

The first step in the methods the NMFS uses for applying the ESA section 7(a)(2) to listed salmon and steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list Snake River salmon and steelhead for ESA protection, and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for Snake River spring/summer chinook salmon and Snake River steelhead to survive and recover to naturally reproducing population levels at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

The current status of Snake River spring/summer chinook salmon ESU has improved somewhat since being listed as threatened in 1992. In 1994 the species was proposed for listing as endangered due to very low numbers of adults observed at Lower Granite Dam on the lower Snake River. However, an improvement in the adult return levels seen in 1997 prompted the withdrawal of the proposed rule in

1998. Recent returns show continuing improvements in adult returns, at least for some portions of the ESU. The counts at Lower Granite for spring/summer chinook were 14,320 in 1998, 6,556 in 1999, and 37,755 in 2000. Lower Granite Dam is located at river mile 107.5 on the mainstem Snake River, about 70 miles below (downstream of) the confluence of the Grande Ronde River with the Snake.

Snake River spring/summer chinook use relatively small, higher elevation streams for spawning and early juvenile rearing. They migrate swiftly to sea as yearling smolts. The returning adult spring-run chinook reach the Snake River in April, whereas returning summer-run adult chinook reach the Snake River in July. Peak spawning for both spring and summer chinook is in the fall (mid August through September). The Grande Ronde River Basin contains spring and summer runs. Populations from this ESU migrate to the ocean as yearlings, mature at ages 4 and 5, and are rarely taken in ocean fisheries. High water temperatures and low water levels prevent the lower reaches of Catherine Creek from being suitable chinook spawning habitat.

Low numbers of rearing juvenile chinook may be present in the vicinity of the project, although their presence will be limited during periods of low flow and high summer temperatures. Some adult chinook may be oversummering in deep pools nearby, but there are no such pools in the re-channelized section of Catherine Creek where the project is located. Chinook are not known to spawn in this area of Catherine Creek due to high fall temperatures. In the upper reaches, where the North Fork, Middle Fork, and South Fork of Catherine Creek originate in the Wallowa Mountains, there is suitable habitat and evidence of chinook spawning. Successful migration through the city of Union and beyond is limited, however, by the poor quality habitat and water diversions.

The Grande Ronde River spring/summer chinook stocks are at moderate risk of extinction, primarily due to habitat degradation and disruption of migration corridors. The abundance of naturally-spawning chinook in this ESU has drastically decreased from historical population sizes of more than 1.5 million adults. The average population size between 1992 and 1996 was 3,280 naturally-produced spawners (based on counts at Lower Granite Dam on the Snake River). As noted above, these counts improved between 1998 and 2000. The most significant barriers to chinook presence in the Grande Ronde System are the many dams along the Columbia and Snake rivers that greatly inhibit migration. Other significant factors involved with habitat degradation include high water temperatures, lack of pools, low flows, poor overwintering conditions, and high sediment loads.

Snake River steelhead, listed in 1997, have shown some recent improvement, although the data for wild fish are insufficient to draw any conclusions about trends. During 1990 - 1995 the percentage of wild origin steelhead migrating above Lower Granite dam averaged 14% of the total run; the majority of steelhead in the Snake River system are of hatchery origin. Data for the past 10 years indicate that the hatchery origin steelhead continue to outnumber the wild fish.

Adult steelhead enter freshwater from May to August, and begin to move into the Grande Ronde system in February. Spawning occurs from March through May. After spawning, adult steelhead individuals of this population die, so they are not present in the system after around June. Juveniles are

present all year, but are likely to move to cool water refugias during the warm summer months. Hatchery fish are widespread in the Snake River steelhead ESU.

NMFS concluded that the Snake River steelhead are not presently in danger of extinction, but likely to become extinct in the foreseeable future (NOAA 1996). This is primarily due to the declining abundance of natural runs. As with chinook salmon, the most significant barriers to steelhead presence in the Grande Ronde System are the many dams along the Columbia and Snake rivers that greatly inhibit migration. Possible genetic introgression from hatchery stocks is another threat. NMFS is also concerned about the degradation of freshwater habitats within the region, especially the impact of grazing, irrigation diversions, and hydroelectric dams on steelhead. However, the evaluation of threats to Snake River steelhead is clouded by uncertainty around population sizes, degree of interaction between hatchery and natural stock, and relationships between anadromous and resident forms of steelhead.

4.2. Environmental Baseline

The current range-wide status of the identified ESUs may be found in Busby et al. (1996) and Myers et al. (1998). The identified action will occur within the range of Snake River steelhead and Snake River spring/summer chinook. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, contributing to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and riparian habitat of Catherine Creek, 100 feet upstream from the bridge site, and 200 feet downstream.

The project is within the Catherine Creek watershed of the Grande Ronde River basin. The watershed covers about 328 square miles, most of which is private agricultural lands; the upper reaches are located within the Wallowa-Whitman National Forest. Catherine Creek flows out of the west side of the Wallowa Mountains, though the city of Union, and then into the Grande Ronde River downstream of the project area about 18 river miles. About 140 miles down from this confluence, the Grande Ronde River enters the Snake River near the northeastern Oregon/Idaho border. The Snake River flows into the Columbia River.

The eastern portion of the Snake River Basin flows out of the granitic geological unit known as the Idaho Batholith, while the western Snake River Basin drains sedimentary and volcanic soils of the Blue Mountains complex. The project is within the Blue Mountains Province, characterized by coniferous forests and grass/steppe vegetation. The riparian corridor within the project area includes cottonwood

trees, willows, box elder, red-osier dogwood, wild rose, bedstraw, goat's beard, orchard grass, cheatgrass, and other non-native grasses.

The bridge site is within a rechannelized, man-made stretch of Catherine Creek. In the early 1900's, flooding in the city of Union prompted the citizenry to redirect the flow of Catherine Creek from its natural, meandering course (located several hundred feet to the north of the project site) to a straightened and artificially constructed channel. This rechannelization did not prevent the 100-year flood event that occurred in 1948 from inundating the town with Catherine Creek's redirected flow. Subsequently, levees were built in the early 1950s on both sides of the channel at the project site. These levees, originally riprapped, have since been filled in with soil, and riparian vegetation has grown over the hardened banks to such a degree that there is little evidence of the man-made nature of the stream banks. In 1998, an ice jam at a downstream diversion resulted in floodwaters again causing water to back up over the tops of the levees in the area of the bridge.

However artificial the habitat in this stretch of Catherine Creek, it has served as a migration corridor for both Snake River spring/summer chinook and steelhead, and as juvenile rearing habitat for Snake River steelhead. Pools and refugia are not found within this stretch of Catherine Creek, and there is very limited large woody material (LWM) to provide cover. Diversions upstream of the project site have reduced flows in Catherine Creek, and a high width to depth ratio exacerbates the problem of low flows in the summertime. These all limit the fish use in this particular stretch of Catherine Creek primarily to migration.

The section of Catherine Creek from its mouth to Union Dam, which includes the project site, is currently listed by the Oregon Department of Environmental Quality (DEQ) under the Clean Water Act's Section 303(d), *List of Water Quality Limited Water Bodies*. Union Dam is located approximately two miles upstream of the bridge site, and this impoundment provides water for irrigation to many of the agricultural users in the vicinity and in the Grande Ronde valley. The city of Union discharges treated sewage into Catherine Creek. The identified water quality problems in this portion of Catherine Creek include habitat modification, flow modification, nutrients, pH, aquatic weeds or algae, dissolved oxygen, and temperature (DEQ, 1999).

Based on the best available information on the current status of Snake River spring/summer chinook and steelhead range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area (as described in the BA), NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. Numbers of both chinook and steelhead are substantially below historic numbers. Recovery trends show no clear pattern due to lack of long-term data. Degraded freshwater habitat conditions, which include the effects of agricultural and residential use, have contributed to the decline.

The NMFS Matrix of Pathways and Indicators (NMFS 1996) was used to assess the current condition of various steelhead and salmon habitat parameters. Use of the Matrix identified the following habitat indicators as either at risk or not properly functioning within the action area:

Water temperatures, turbidity/sediment, substrate, large woody debris, pool frequency and quality, off-channel habitat, refugia, streambank condition, floodplain connectivity, peak/base flows, drainage network increase, and disturbance history and regime. Actions that do not maintain or restore properly functioning aquatic habitat conditions have the potential to jeopardize the continued existence of Snake River chinook salmon and steelhead.

5. ANALYSIS OF EFFECTS

5.1. Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document, *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of proposed actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to threatened Snake River chinook salmon and Snake River steelhead or designated critical habitat:

1. In-water work may cause direct adverse impacts to any juvenile chinook salmon and steelhead that may be present near in or near the work site.

The construction activity has the potential to directly harm juvenile fish due to handling or otherwise disturbing rearing juveniles. Short-term increases in sediment and turbidity could reduce light penetration and inhibit primary production, abrade and clog fish gills, prevent feeding by sight feeders, stop migration, and cause any fish in the area to avoid the disturbed reaches of the creek. The effects of these activities on Snake River chinook salmon and steelhead will be minimized by limiting any in-water construction work to the ODFW-approved in-water work period.

2. Riparian function and stream channel morphology may be altered, causing indirect adverse impacts to steelhead.

Placement of riprap along the embankment may alter fish rearing and migration behavior. Increased sedimentation may result in minor siltation of downstream spawning gravels. There is a potential for changes in channel conditions and dynamics following the placement of riprap. The new bridge will have an increased surface area and larger areas of riprap than the existing bridge; this will result in a net loss of riparian habitat. Areas of the stream bank disturbed during construction will be revegetated, which will eventually restore function in those areas. There will also be a net increase in impervious surfaces of approximately 1,453 square feet; this will be offset, to some degree, by the improvements in

stormwater runoff, as the new bridge will have curbs that direct runoff away from Catherine Creek and into vegetated soils.

The effects of these activities on Snake River chinook salmon and steelhead and aquatic habitat factors will be limited by implementing construction methods and approaches that are included in project design and intended to avoid or minimize impacts. As described in the biological assessment, these include:

1. All in-water work will be conducted during the ODFW-approved in-water work period of July 1 to July 31. This will avoid impacts to juvenile chinook salmon and steelhead, as well as to migrating adults.

2. Alteration and disturbance of stream banks and existing riparian vegetation will be minimized to the extent possible. When working within the two-year floodplain, bank protection material will be placed to maintain normal waterway configuration.

3. ODOT will minimize the amount of riprap used, and place only clean, non-erodible, upland angular rock of sufficient size to ensure long-term armoring. There will be no constriction of the channel bottom width as a result of riprap placement within the 2-year floodplain.

4. Riparian habitat will be protected by flagging the areas to be cleared prior to construction. Areas outside of the flagged zone will not be impacted.

5. Native vegetation will be maintained wherever possible. Shrubs and trees will be removed by clipping at ground level, and not grubbed out of the soil. Invasive exotic species will not be protected.

6. Riparian vegetation will be replaced at a rate of 1.5:1. All disturbed riparian areas in the project vicinity will be replanted with native vegetation.

7. The bridge design has been chosen expressly to minimize and avoid impacts to aquatic habitat and organisms. The use of driven piles for the bridge design is one of the least impacting designs possible. Lengthening the span of the bridge will keep the foundations out of the two year flood plain elevation.

For the proposed action, the NMFS expects that the effects of the proposed project will tend to maintain each of the habitat elements over the long term, greater than two years. However, in the short term, a temporary increase in sediment entrainment and turbidity, and disturbance of riparian and instream habitat is expected. Fish may be killed or temporarily displaced during the in-water work. However, the removal of rotting timbers currently in use, and the improved drainage, are expected to provide long-term benefits to fish and other aquatic species. The potential net effect from the proposed action, including proposed riparian plantings, is expected to be the maintenance and restoration of functional salmon and steelhead habitat conditions.

5.2. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for Snake River chinook salmon and steelhead consists of all waterways below naturally impassable barriers, which includes the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, input of large woody debris or organic matter, and others.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project site and watershed scales. The results of this evaluation, based on the "matrix of pathways and indicators" (MPI) described in *"Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale"* (NMFS 1996), are detailed above. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species and assesses the constituent elements of critical habitat. An assessment of the essential features of Snake River chinook salmon and steelhead critical habitat is obtained by using the MPI process to evaluate whether aquatic habitat is properly functioning.

The proposed actions will affect critical habitat. In the short term, a temporary increase of sediment and turbidity and disturbance of riparian and instream habitat is expected. In the long term, the loss of habitat and increase in impervious surface area will be offset by the restoration of riparian function and the reduction of toxic pollutants coming off of the bridge during precipitation. Consequently, NMFS does not expect that the net effect of this action will diminish the long-term value of the habitat for survival of Snake River chinook salmon and steelhead.

5.3. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area is defined as the streambed and riparian habitat of Catherine Creekthroughout the action area. The action area extends 100 feet upstream of the project site, and 200 feet downstream. The project actions consist of replacing a bridge, and are detailed in the project description section above. NMFS is not aware of any significant change in non-Federal activities that are reasonably certain to occur within the action area. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Future FHWA/ODOT transportation projects are planned in the Grande Ronde watershed. Each of these projects will be reviewed through separate section 7 consultations and are not considered cumulative effects of this project.

6. CONCLUSION

NMFS has determined based on the available information, that the proposed action is expected to cause no further degradation of stream habitat conditions within the action area over the long term. As such, the proposed action covered in this Opinion is not likely to jeopardize the continued existence of Snake River salmon and steelhead. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment impacts, in-water construction, and habitat loss. These effects will be mitigated through the implementation of proposed plantings and improved bridge design. Because properly functioning aquatic habitat conditions will be maintained, there is no adverse modification or destruction of critical habitat. Direct mortality of juvenile steelhead may occur during the in-water work period of project activities.

7. REINITIATION OF CONSULTATION

Consultation must be reinitiated if: 1) The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; 2) new information reveals effects of the action may affect listed species in a way not previously considered; 3) the action is modified in a way that causes an effect on listed species that was not previously considered; or, 4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To reinitiate consultation, ODOT must contact the Habitat Conservation Division (Oregon Branch Office) of NMFS.

8. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

8.1. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of Snake River chinook salmon and steelhead because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on chinook salmon and steelhead habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the two species. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the biological assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to within the area of project disturbance, extending 100 feet upstream and 200 feet downstream of the project area.

8.2. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. To minimize the amount and extent of incidental take from in-water construction activities at the Catherine Creek bridge, measures shall be taken to limit the duration and extent of in-water work, and to time such work when the impacts to Snake River chinook salmon and steelhead are minimized.

2. To minimize the amount and extent of incidental take from construction activities in or near the creeks, effective erosion and pollution control measures shall be developed and implemented throughout the area of disturbance. The measures shall minimize the movement of soils and sediment both into and within the river, and will stabilize bare soil over both the short term and long term.

3. To minimize the amount and extent of take from loss of instream habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream function.

4. To ensure effectiveness of implementation of the reasonable and prudent measures, all erosion control measures and plantings for site restoration shall be monitored and evaluated both during and following construction, and meet criteria as described below in the terms and conditions.

8.3. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, FHWA/ODOT must comply with the following terms and conditions, which will implement the reasonable and prudent measures described above. These terms and conditions should be incorporated into construction contracts and subcontracts to ensure that the work is carried out in the manner prescribed. Implementation of the terms and conditions within this Opinion will further reduce the risk of impacts to fish and Catherine Creek habitat These terms and conditions are non-discretionary.

1. In-water work: During the period of in-water work, an ODOT project inspector shall monitor construction activities periodically to ensure that the following provisions are met.

   A. Passage shall be provided for both adult and juvenile forms of all salmonid species throughout the construction period. The FHWA/ODOT designs will ensure passage of fish as per ORS 498.268 and ORS 509.605 (Oregon's fish passage guidance).

   B. All work within the active channel of Catherine Creek will be completed within the ODFW-approved in-water work period (July 1 to July 31). Any adjustments to the in-water work period will first be approved by, and coordinated with, NMFS and ODFW.

   C. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration whenever possible.

   D. During ODOT project design, ODOT will work to minimize the amount of riprap used. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Placement will be from above the bank line and not "end-dumped."

   E. The diversion or withdrawal of any water from natural streams and used for construction or for riparian plantings will comply with all state and federal laws, particularly those that require a temporary water right and screening of intakes. The FHWA/ODOT shall be responsible for informing all contractors of their obligations to comply with existing, applicable statutes.

F. At least one week prior to the start of work in the two year flood plain, the ODOT project inspector shall notify the ODOT Regional Environmental Coordinator (REC) of the expected date of construction. The ODOT REC shall in turn notify NMFS.

2. Erosion and Pollution Control

An Erosion Control Plan (ECP) will be prepared by ODOT or the contractor, and implemented by the contractor. The ECP will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures shall be sufficient to ensure compliance with applicable water quality standards and this Opinion. The ECP shall be maintained on site and shall be available for review upon request. The following conditions must be met.

a. Effective erosion control measures shall be in-place at all times during the contract. Construction within the five-year floodplain will not begin until all temporary erosion controls (e.g., straw bales, silt fences, or other methods) are in place within the riparian area. Erosion control structures will be maintained throughout the life of the contract.

i. Erosion control blankets or heavy duty matting (e.g., jute) may be used on steep unstable slopes in conjunction with seeding, or prior to seeding.

ii. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work on exposed slopes.

b. All exposed areas will be replanted with native vegetation. Erosion control planting, and placement of erosion control blankets and mats (if applicable) will be completed on all areas of bare soil within seven days of exposure within 150 feet of waterways, wetlands or other sensitive areas, and in all areas during the wet season (after October 1). All other areas will be stabilized within 14 days of exposure. Efforts will be made to cover exposed areas as soon as possible after exposure.

c. All erosion control devices will be inspected throughout the construction period to ensure that they are working adequately. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, and monthly on inactive sites. Work crews will be mobilized to make immediate repairs to the erosion controls, or to install erosion controls during working and off-hours. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional erosion controls will be installed as necessary.

d. In the event that soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.

e. Where feasible, sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters an aquatic resource area.

f. A supply of erosion control materials (e.g., straw bales and clean straw mulch) will be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.

g. All equipment that is used for instream work will be cleaned prior to entering the two-year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.

h. Material removed during excavation shall only be placed in upland locations where it cannot enter sensitive aquatic habitat. Conservation of topsoil (removal, storage and reuse) will be employed.

i. Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

j. Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and DEQ's provisions for maintenance of water quality standards. Toxic substances shall not be introduced above natural background levels in waters of the State in amounts which may be harmful to aquatic life. Any turbidity caused by this project shall not exceed 10% above background as measured 30 feet downstream of the project, per the NPDES permit.

k. The Contractor will develop and implement an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the ODOT Engineer to ensure compliance with this PCP. The PCP shall include the following:

    i. A site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pit operations, haul roads, equipment storage sites, fueling operations and staging areas.

ii. Methods for confining and removing and disposing of excess construction materials, and measures for equipment washout facilities.

iii. A spill containment and control plan that includes: notification procedures; specific containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.

iv. Measures to be used to reduce and recycle hazardous and non-hazardous waste generated from the project. This information will include the types of materials, estimated quantity, storage methods, and disposal methods.

v. The person identified as the Erosion and Pollutant Control Manager (EPCM) shall also be responsible for the management of the contractor's PCP.

l. Areas for fuel storage, refueling and servicing of construction equipment and vehicles will be located above the 10-year floodplain of any waterbody. Overnight storage of non-wheeled vehicles is allowed within the 2-year floodplain during the in-water work window; however, to minimize the risk of fuel reaching the water, refueling of these vehicles should not occur after 1 pm (so the vehicles do not have full tanks overnight).

m. Hazmat booms will be installed in all aquatic systems where:

i. Significant in-water work will occur, or where significant work occurs within the 5-year floodplain of the system, or where sediment/toxicant spills are possible.

ii. The aquatic system can support a boom setup (i.e. the creek is large enough, low-moderate gradient).

n. Hazmat booms will be maintained on-site in locations where there is potential for a toxic spill into aquatic systems. "Diapering" of vehicles to catch any toxicants (oils, greases, brake fluid) is mandatory when the vehicles have any potential to contribute toxic materials into aquatic systems.

o. No surface application of nitrogen fertilizer will be used within 50 feet of any aquatic resource.

3. Riparian Habitat Protection Measures include the following:

a. Boundaries of the vegetation clearing limits will be flagged by the project inspector. Ground will not be disturbed beyond the flagged boundary.

b. Alteration of native vegetation will be minimized. Where possible, native vegetation will be clipped by hand so that roots are left intact. This will reduce erosion while still allowing room to work. No protection will be made of invasive exotic species (e.g. Himalayan blackberry), although no chemical treatment of invasive species will be used.

c. Riparian understory and overstory vegetation will be replaced following the provisions described in the amended biological assessment. Woody vegetation will have a replacement rate of l.5:1. Replacement will occur within the project vicinity. Materials will be salvaged from the construction zone or obtained using stock that originates in the Snake River basin, and will include native willow, gooseberry, and black hawthorne.

4. Monitoring requirements include the following:

a. Erosion control measures as described above in 2(d) shall be monitored.

b. All significant riparian replant areas will be monitored to insure the following:

i. Finished grade slopes and elevations will perform the appropriate role for which they were designed.

ii. Plantings are performing correctly and have an adequate success rate (success rate depends on the planting density, but the goal is to have a functional riparian vegetation community).

c. Failed plantings and structures will be replaced, if replacement would potentially succeed. If not, plantings at other appropriate locations will be done.

d. A plant establishment period (three year minimum) will be required for all riparian mitigation plantings.

e. By December 31 of the year following the completion of construction, FHWA/ODOT shall submit to NMFS (Oregon Branch) a monitoring report with the results of the monitoring required in terms and conditions (4(a) to 4(c) above).

9. ESSENTIAL FISH HABITAT

Public Law 104-267, the Sustainable Fisheries Act of 1996, amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for "Essential Fish Habitat" (EFH) descriptions in Federal fishery management plans and to require Federal agencies to consult with NMFS on activities that may adversely affect EFH. "Essential Fish Habitat" means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to

maturity" (Magnuson-Stevens Act §3). The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed Pacific salmon fisheries (PFMC 1999), which for the project area include Snake River spring/summer chinook. EFH includes those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery (i.e., properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation).

The Magnuson-Stevens Act requires consultation for all actions that may adversely affect EFH, and it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

The designated salmon fishery EFH includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except above the impassable barriers identified by PFMC. Salmon EFH excludes areas upstream of longstanding naturally impassable barriers (i.e., natural waterfalls in existence for several hundred years). The proposed action area encompasses the Council-designated EFH for chinook salmon (*Onchorhynchus tshawytscha*).

The objective of this EFH consultation is to determine whether the proposed action may adversely affect EFH for chinook salmon. Another objective of this EFH consultation is to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse impacts to EFH resulting from the proposed action.

NMFS expects that the effects of this project on chinook salmon EFH are likely to be within the range of effects to listed Snake River spring/summer chinook salmon considered in the ESA portion of this consultation. Based on that analysis, NMFS finds that the proposed project is likely to adversely affect EFH for chinook salmon.

The FHWA/ODOT have provided for minimization of the potential effects to EFH in the proposed project design. The reasonable and prudent measures and the terms and conditions outline above in section 9 are applicable to chinook salmon EFH. Therefore NMFS recommends that they be adopted as EFH conservation measures. If the FHWA/ODOT adopt this recommendation, potential adverse effects to EFH will be minimized.

The FHWA/ODOT must reinitiate EFH consultation with NMFS if the action is substantially revised in a manner that may adversely affect EFH or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR Section 600.920[k]).

10. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

Busby, P., S. Grabowski, R. Iwamoto, C. Mahnken, G. Matthews, M. Schiewe, T. Wainwright, R. Waples, J. Williams, C. Wingert, and R. Reisenbichler. 1995. Review of the status of steelhead (*Oncorhynchus mykiss*) from Washington, Idaho, Oregon, and California under the U.S. Endangered Species Act. 102 p. plus 3 appendices.

Busby, P., T. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, and I.V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California.

DEQ 1999. DEQ's 1998 303d List of Water Quality Limited Streams & Oregon's Criteria Used for Listing Waterbodies. Oregon Department of Environmental Quality (DEQ), Portland, Or 1999. (www.deq.state.or.us/wq/303dlist/303dpage.htm).

Matthews, G.M., and R.S. Waples, 1991. Status review for Snake River Spring and Summer Chinook Salmon. US. Department of Commerce, NOAA Technical Memo. NMFS

Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lierheimer, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neely, S.T. Lindley, and R.S. Waples, 1998. Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California. U.S. Department of Commerce, NOAA Technical Memo. NMFS-NWFWC-35, 443 p.

NMFS 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon, 32 p.

PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.